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Job No.: CECTC/BBMP/KRIDL/W.No.12/2015-16 08.04.2015

Specific Gravity And Water Absorption Test

IS: 2386 Part III

Client	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager(West),** KRIDL, BBMP, Bangalore.
Name of the Work	Improvements and Asphalting to Kaivaranarayana swamy Temple road at Kammagondanahalli in Shettyhall Ward No.12, BBMP, Bangalore.
Type of Mix	Semi Dense Bituminous Concrete
Source / Location	Hotmix Plant, Bangalore
Date of Testing	08.04.2015

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2020	2018	2015	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1265	1263	1260	
4	Weight of saturated surface dry aggregate in air	W_3 g	2015	2018	2020	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	750	755	760	
6	Weight of oven dried aggregate	W_4 g	2004	2005	2007	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.672	2.656	2.641	2.656
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.712	2.702	2.687	2.700
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.55%	0.65%	0.65%	0.62%

Comments:

→ Maximum allowable Aggregate Water absorption value for Semi Dense Bituminous Concrete is 2.0%

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Job No.:CECTC/BBMP/KRIDL/W.No.12/2015-16 08.04.2015

Aggregate Gradation Test

IS : 2386 Part I

Client	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager(West),** KRIDL, BBMP, Bangalore.
Name of the Work	Improvements and Asphalting to Kaivaranarayana swamy Temple road at Kammagondanahalli in Shettyhall Ward No.12, BBMP, Bangalore.
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete (SDBC)
Date of Testing	08.04.2015

Total Weight of Sample: **5600** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	466	8.3	8.32	91.68	90-100	
4.75	2860	51.1	59.39	40.61	35-51	
2.36	755	13.5	72.88	27.13	24-39	
1.18	530	9.5	82.34	17.66	15-30	
0.3	280	5.0	87.34	12.66	9-19	
0.075	342	6.1	93.45	6.55	3-8	

Total Weight of Sample: **5650** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	445	7.9	7.88	92.12	90-100	
4.75	2920	51.7	59.56	40.44	35-51	
2.36	725	12.8	72.39	27.61	24-39	
1.18	490	8.7	81.06	18.94	15-30	
0.3	385	6.8	87.88	12.12	9-19	
0.075	497	8.8	96.67	3.33	3-8	

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Job No.: CECTC/BBMP/KRIDL/W.No.12/2015-16 08.05.2015

BITUMEN CONTENT DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX
AS per IRC : SP : 11 - 1984

CLIENT	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager(West),** KRIDL, BBMP, Bangalore.
NAME OF THE WORK	Improvements and Asphalting to Kaivaranarayana swamy Temple road at Kammagondanahalli in Shettyhall Ward No.12, BBMP, Bangalore.
SAMPLE I/D	supplied by the agency
DATE OF TESTING	08.05.2015

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	474.5	473.5
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	25.50	26.50
7. Bitumen content in %	5.10	5.30
8. Average	**5.20**	

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Job No.: CECTC/BBMP/KRIDL/W.No.12/2015-16 08.05.2015

BITUMEN GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

As per IS : 2386 and IRC : SP : 11 - 1984

CLIENT	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager(West),** KRIDL, BBMP, Bangalore.
NAME OF THE WORK	Improvements and Asphalting to Kaivaranarayana swamy Temple road at Kammagondanahalli in Shettyhall Ward No.12, BBMP, Bangalore.
SAMPLE I/D	supplied by the agency
DATE OF TESTING	08.05.2015

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	30	6.32	6.32	93.68	90-100
4.75	270	56.90	63.22	36.78	35-51
2.36	56	11.80	75.03	24.97	24-39
1.18	38	8.01	83.03	16.97	15-30
0.3	28.5	6.01	89.04	10.96	9-19
0.075	26	5.48	94.52	5.48	3-8

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	31.5	6.65	6.65	93.35	90-100
4.75	255	53.85	60.51	39.49	35-51
2.36	54	11.40	71.91	28.09	24-39
1.18	30.8	6.50	78.42	21.58	15-30
0.3	25.4	5.36	83.78	16.22	9-19
0.075	46	9.71	93.50	6.50	3-8

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Job No.: CECTC/BBMP/KRIDL/W.No.12/2015-16 08.04.2015

TEST REPORT ON STABILITY OF MIX

Client	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	:	**Technical Manager(West),** KRIDL, BBMP, Bangalore.
Name of the work	:	Improvements and Asphalting to Kaivaranarayana swamy Temple road at Kammagondanahalli in Shettyhall Ward No.12, BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Semi Dense Bituminous Concrete
Date of Testing	:	08.04.2015

The results of the tests conducted on the bituminous mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-16)
1	Marshal Stability, at 60° C, Kn	10.15	10.30	8.2 Kn (min)
2	Marshal flow at 60° C, mm	3.46	3.70	2 – 4
3	Percent air voids	4.24	4.56	3 – 5
4	Percent voids in mineral aggregates (VMA %)	13.15	14.19	13 - 15
5	Percent voids filled with Bitumen (VFB %)	72.35	73.46	65 – 78
6	Density, g/cc	2.26	2.27	---

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